

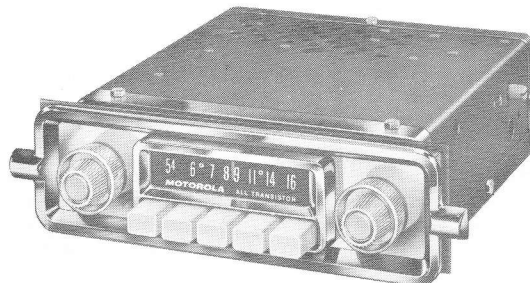
**MOTOROLA**



## GENERAL INFORMATION

### TYPE

Automotive type all-transistor superheterodyne AM radio for standard broadcast reception; operates from 6 volt negative ground system. Designed for custom installation in the 1958-1963 Volkswagen. This receiver contains 7 transistors and 2 diodes.



## SERVICE NOTES

1. Make certain the "A" lead is connected to the positive (+) side of the power source, otherwise, damage to receiver may result. If a battery eliminator is used as a power source in place of a battery, it must be well filtered and regulated.

2. When replacing a power output transistor, remember to use the transistor specified in the parts list; coat both sides of the transistor insulator with DC-4 grease (Motorola Part No. 11M490487) and securely tighten the transistor mounting screws. When replacing all other transistors, use long-nose pliers as a heat sink, i. e., grasp transistor leads close to transistor base with the pliers to dissipate heat while soldering.

3. Servicing techniques applicable to this model can be found in the following Motorola publications: "Profitable Transistor Radio Servicing" (Motorola Part Number 68P60011A53) and "A Discussion of Transistorized Car Radios" (Motorola Part No. 68P64980A51).

4. **POWER TRANSISTOR CURRENT ADJUSTMENT** - After replacing a power transistor, the collector current should be checked and adjusted for proper operation.

A. Insert a low range (0-1 or 0-2 amp) DC ammeter in the primary ground return lead of the output transformer (T-4). Connect the negative terminal of the meter to ground. **CAUTION:** Be sure the speaker ground lead is connected in common with the transformer ground lead to the positive terminal (see

schematic diagram). Speaker must be connected.

B. Turn the radio on and allow it to heat up for about 15 minutes.

C. Adjust the bias control (R-16) for a reading of 480 ma with 6.3 volts input to the radio "A" lead.

**NOTE:** Two values of radio input voltage are given as a convenience to service personnel in order to accommodate different power sources. The current value stated on the schematic diagram is for 7 volts input to the radio "A" lead.

## TO SET PUSHBUTTONS

Unlock pushbutton by pulling it out about 1/2" forward of its normal position. Tune in station and lock the pushbutton to the station by pushing it in firmly.

## MOTOROLA AUTO RADIO WARRANTY SERVICE STATION PROCEDURE

1. A Motorola Branded Model is one that has the Motorola name and is distributed to dealers through the Motorola Distributors.

2. This model is guaranteed for all parts and labor, including removal and re-installation (R & R) for a period of two years from the date of purchase. The following repairs are not covered under this guarantee: the elimination of motor noise, tire static, electrical interference and faulty installation. Charges for these repairs are to be paid by the customer.

3. Before performing a warranty repair on a Motorola Branded Auto Radio, you must first receive the Customer's Car Radio Guarantee and Service Booklet. The installation and model information on the

booklet must be filled in by the selling dealer at the time of retail sale. The Customer's Car Radio Guarantee and Service Booklet must show that the radio is within the warranty period to be repaired under the Motorola Auto Radio Guarantee.

4. To obtain your labor allowance for the servicing of the customers in-warranty set, fill in the Motorola Auto Radio Warranty Labor Claim, Part Number 54P480884. If you perform a R & R service, you are entitled to the R & R allowance. If you only repair the radio without R & R service, you are entitled to the labor allowance. However, if you perform both R & R and the repair, then be sure to indicate both on your claim form for both allowances. After the form has been

filled in, mail the white and green copies to your Motorola Distributor for payment. The yellow copy is to be retained in the Service Station file.

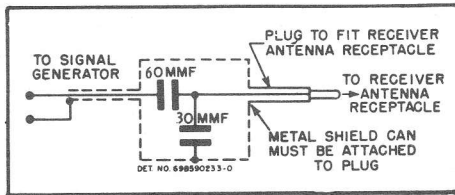
5. The pink copy of the Motorola Auto Radio Warranty Labor Claim is used to return any defective parts on the repair of the radio to your Motorola Distributor for free replacement.

6. Only those service stations authorized by their Motorola Distributor can perform repairs within the warranty period on a no-charge basis to the customer. If you are not an Authorized Motorola Auto Radio Service Station, and you are interested in handling this service, please contact your Motorola Distributor for complete details.

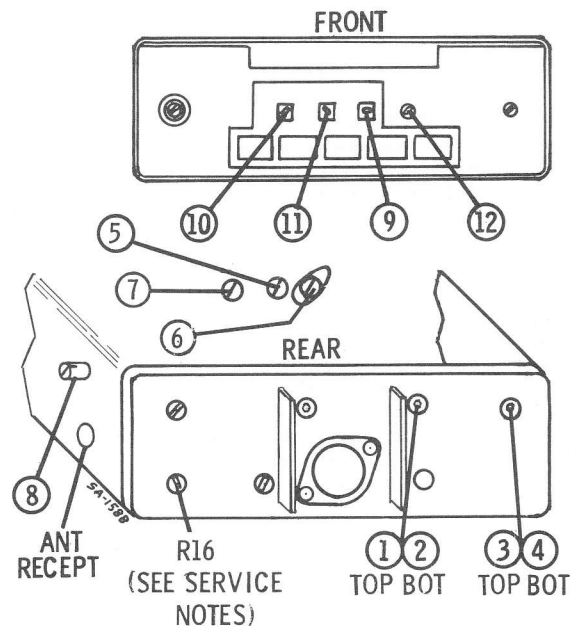
## ALIGNMENT

Connect an output meter across the speaker voice coil. Set volume to maximum and tone to treble. Attenuate signal generator output to maintain 1 watt (1.79 volts across 3.2 ohm load) on output meter at all times.

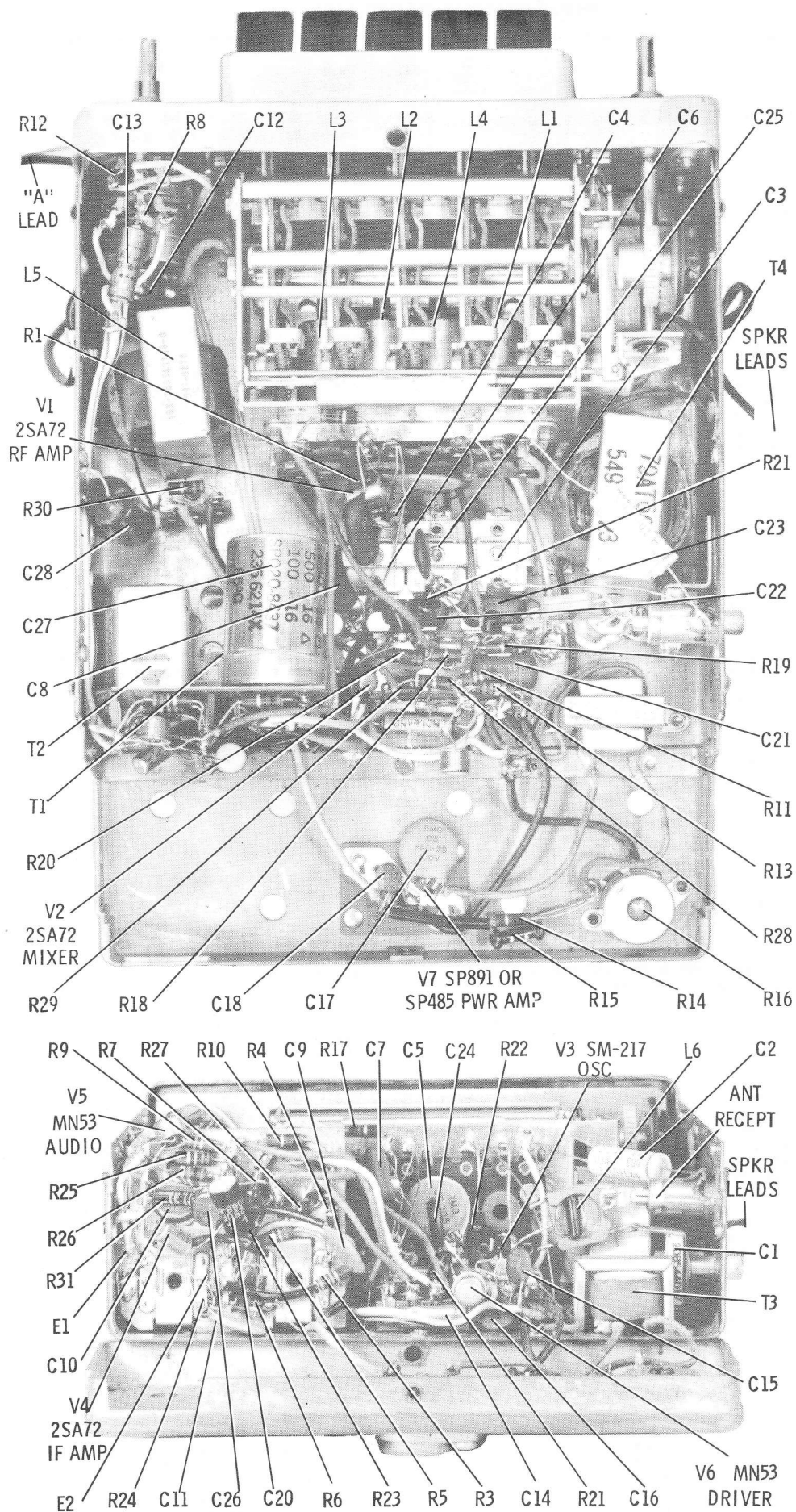
STEP	GENERATOR CONNECTION	GEN FREQ (400 cycle 30% mod)	TUNER SET TO	ADJUST	REMARKS
IF ALIGNMENT					
1.	To collector of RF amp thru .1mf & chassis	262.5 Kc	Hi end stop	1, 2, 3 & 4	Adjust for maximum
RF ALIGNMENT					
2.	Ant recept thru dummy (see figure)	1610 Kc	Hi end stop	5, 6, 7 & 8	Adjust for maximum
NOTE:	Do not perform Steps 3, 4, 5 & 6 unless the tuner has been tampered with or associated components have been replaced. If necessary, remove the escutcheon, dial background and the pilot light socket to expose the core screws. Before proceeding with Step 3, back the tuning cores as far as possible out of the coils to eliminate their effect on trimmer adjustments.				
3.	Ant recept thru dummy (see figure)	1610 Kc	Hi end stop	5, 6, 7 & 8	Adjust for maximum
4.	"	1200 Kc	Tuner carriage .285" from Hi end stop	9, 10, 11 & 12	Adjust for maximum
5.	"	1610 Kc	Hi end stop	5, 6, 7 & 8	Adjust for maximum
6.	Repeat Steps 4 and 5 until no further increase; Step 5 should be last step. Then, cement core screws in place.				
ANTENNA TRIMMER					
7.	-	-	Weak station around 1400 Kc	8	Adjust for maximum with radio installed in car and antenna fully extended.



DUMMY ANTENNA DETAIL



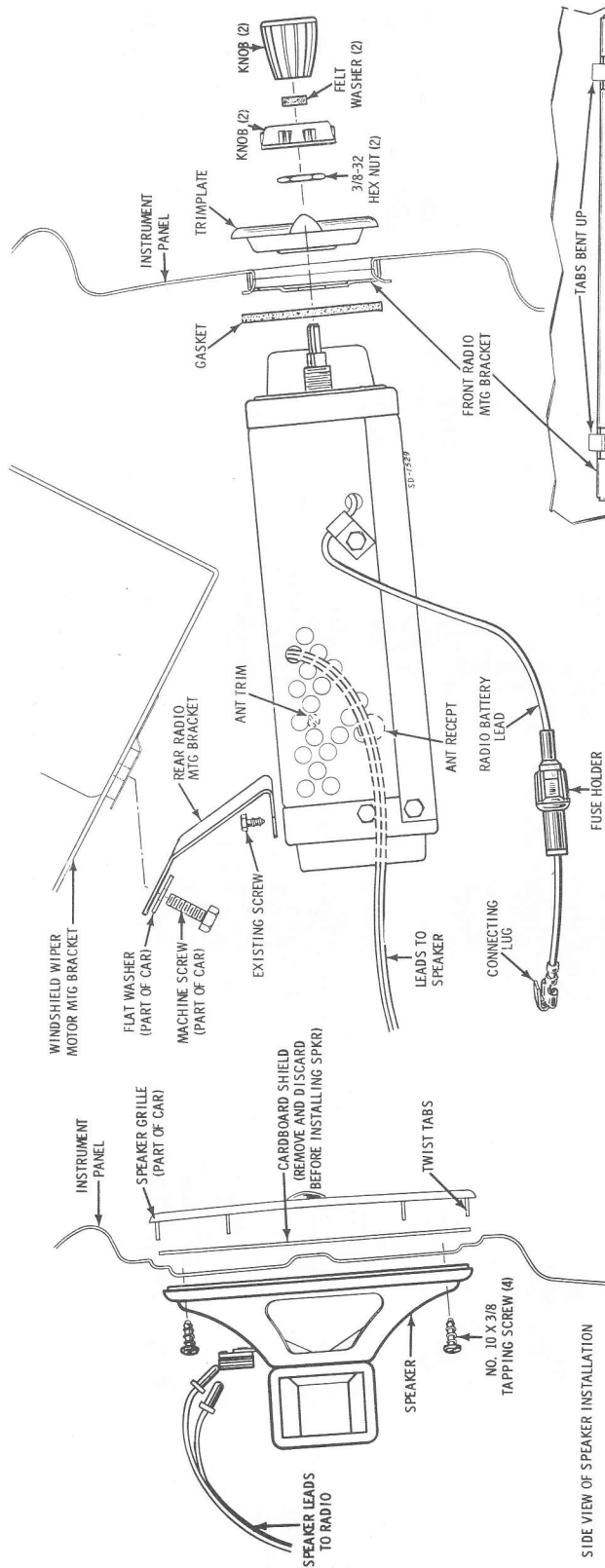
ALIGNMENT LOCATION DETAIL



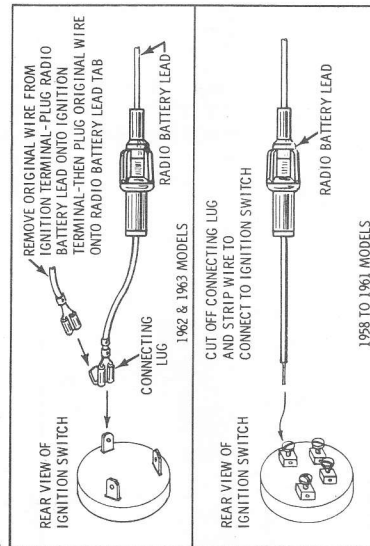
PARTS LOCATION



\*DENOTES VALUE IN SOME SETS



SIDE VIEW OF RADIO INSTALLATION



RADIO INSTALLATION DETAIL



# REPLACEMENT PARTS LIST

NOTE: When ordering parts, specify model number of set in addition to part number and description of part.

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
<b>ELECTRICAL PARTS</b>			R-29	6S125C25	100 10% 1/2W
CAPACITORS - NOTE: All capacitors are ceramic disc type unless otherwise specified.			R-30	6S125C21	68 10% 1/2W
C-1	20B544017	40 mmf to 430 mmf trimmer	R-31	6S125D10	330,000 10% 1/2W
C-2	8R10064A34	.003 mf 200V mylar (USE 8R10110A02)	<b>TRANSFORMERS</b>		
C-3	20K541014	20 mmf to 120 mmf trimmer	T-1	24B64613A01	1ST IF: 262.5KC
C-4	21R120159	8.2 mmf 500V f.c.	T-2	24B64613A02	2ND IF: 262.5KC
C-5	21R128634	.005 mf 500V	T-3	25B64610A02	DRIVER (USE 25B64610A03)
C-6	20K541014	20 mmf to 120 mmf trimmer	T-4	25C64607A01	OUTPUT (USE 25C64607A02)
C-7	8K129455	.05 mf 200V mylar	<b>TRANSISTORS</b>		
C-8	8K131769	.005 mf 200V mylar	V-1	48K134602	2SA72 (RF amp - USE 48K134601)
C-9	21K131254	.05 mf 100V (USE 21A740805)	V-2	48K134601	2SA72 (mixer)
C-10	21K131254	.05 mf 100V (USE 21A740805)	V-3	48R134635	SM217 (oscillator)
C-11	21R121228	150 mmf 500V N750 (USE 21R124608)	V-4	48K134600	2SA72 (IF amp - USE 48K134601)
C-12	21R122871	.005 mf 500V (USE 21R128634)	V-5	48A124318	MN53 (audio amp)
C-13	23K544697	6.4 mf 40V electrolytic (also replaces 5 mf used in some sets)	V-6	48R134641	MN53 (driver)
C-14	23K544697	6.4 mf 40V electrolytic (also replaces 5 mf used in some sets)	V-7	48R134646	SP891 (pwr - also replaces SP485)
C-15	21K132103	.01 mf 100V	<b>MECHANICAL PARTS</b>		
C-16	21K132525	.002 mf 100V	*7K544712	BACKGROUND, dial scale	
C-17	21D40339A53	.03 mf 100V	42B733793	CLIP, IF mtg	
C-18	21K132103	.01 mf 100V	#15K544715	COVER, back (heat sink)	
C-19	64K530177	SPARK PLATE	#15K543815	COVER, bottom	
C-20	23K544540	25 mf 3V electrolytic (USE - 23C40071A05)	13C543880	ESCUTCHEON, dial	
C-21	8K131799	.01 mf 100V mylar	14A543810	INSULATOR, power transistor mtg	
C-22	8K131799	.01 mf 100V mylar	36K544747	KNOB, dummy	
C-23	8K131799	.01 mf 100V mylar	36K544748	KNOB, tone	
C-24	21R410036	100 mmf 500V N750	36K544760	KNOB, vol & tuning	
C-25	20K541700	310 mmf to 390 mmf trimmer	29A64647A01	LUG, terminal ("A" lead)	
C-26	21K132103	.01 mf 100V	13K544668	MASK, dial scale	
C-27	23C64722A02	100-500-500 mf/16V electrolytic	2S7051	PALNUT: 3/8-32x9/16 (vol control mtg)	
C-28	*23K544718	500 mf 8V electrolytic	9A472148	RECEPTACLE, antenna	
C-29	64K530177	SPARK PLATE	9K544713	RECEPTACLE, fuse	
<b>MISCELLANEOUS ELECTRICAL PARTS</b>			*34B64793A02	SCALE, dial	
E-1	48K644681	DIODE, 1N60 (det)	3K560695	SCREW, tapping: #6x1/2 (pwr transistor mtg)	
E-2	48K644681	DIODE, 1N60 (AGC)	9A543879	SOCKET, pilot light	
E-3	50C543225	SPEAKER, PM: 5"; 3.2Ω VC (USE - 50C562767)	9B542339	SOCKET, transistor (pwr amp)	
E-4	65R10867	BULB, pilot light: #44 (6.3V)	2S7087	SPEED NUT (dial scale ret)	
E-5	65R122345	FUSE, 5 amp: 1 ag	29A76280	TERMINAL, pin: black (spkr leads)	
<b>COILS &amp; CHOKES</b>			29K76282	TERMINAL, pin: white (spkr leads)	
L-1,2,3,4	-	SEE TUNER PARTS	<b>INSTALLATION PARTS &amp; ACCESSORIES</b>		
L-5	25B543338	CHOKE, filter	7A543889	BRACKET, radio mtg	
L-6	24B64785A03	CHOKE, RF	8B538244	CAPACITOR, noise suppression (generator)	
<b>CONTROLS</b>			8B544383	CAPACITOR, noise suppression (ignition coil)	
R-8 & 12	18C64734A03	VOLUME, TONE & SW: vol 10K; tone 100K	#1V544036	KIT, radio installation	
R-16	18C64735A08	BIAS: 300 20% 2W	29A64647A01	LUG, terminal (ignition coil capacitor)	
RESISTORS - NOTE: All resistors are insulated composition type unless other specified.			2S1376	NUT, hex: 3/8-32x1/2x3/32 (radio front mtg)	
R-1	6S125C81	22,000 10% 1/2W	6A4141	SUPPRESSOR, distributor	
R-2	6S125D02	150,000 10% 1/2W	1V64961A22	TRIMPLATE: incls tubing	
R-3	6S125C85	33,000 10% 1/2W	<b>TUNER PARTS</b>		
R-4	6S125C95	82,000 10% 1/2W (in some sets)	43K471633	BEARING, ball	
R-5	6S125C97	100,000 10% 1/2W (in some sets)	1V564641	CLUTCH & DISC ASSEM: incl set screw	
R-6	6S125C91	56,000 10% 1/2W	L-1,2,3,&4	*1V41800A32	COILS & MTG PLATE ASSEM: incl L-1, L-2, L-3, L-4, & mtg plate
R-7	6S125C64	4700 10% 1/2W	76K563288	CORE, iron (oscillator)	
R-8	6S125C33	220 10% 1/2W	76K563286	CORE, iron (RF and ant)	
R-9	-	SEE CONTROLS	1B563899	GEAR BUSHING & DISC ASSEM:	
R-10	6S125C93	68,000 10% 1/2W	5B562438	GROMMET, core mtg	
R-11	6S125C49	1000 10% 1/2W	*45A41254A01	LINK, connecting	
R-12	6S125C83	27,000 10% 1/2W	1B40875A02	POINTER	
R-13	-	SEE CONTROLS	*38K565210	PUSHBUTTON	
R-14	6S125D18	680,000 10% 1/2W	49A562480	ROLLER, clutch release	
R-15	6S125C01	10 10% 1/2W	1V562830	SCREW & NUT ASSEMBLY: adjustable	
R-16	6K543800	10 10% 1/2W: fixed carbon NTC (USE 6K540634)	3A563128	SCREW, set: 4-40x5/16 (clutch & disc assem)	
R-17	-	SEE CONTROLS	3S127896	SCREW, tapping: 4-40x1/4 (coils mtg)	
R-18	6S125C25	100 10% 1/2W	44B563758	SHAFT, manual tuning	
R-19	6S125C64	4700 10% 1/2W	41A562449	SPRING, anti rattle (clutch release bar)	
R-20	6S125C53	1500 10% 1/2W	41A562447	SPRING, clutch release	
R-21	6S125C57	2200 10% 1/2W	41A41255A01	SPRING, connecting link	
R-22	6S125C59	2700 10% 1/2W	41B562503	SPRING, pointer tension	
R-23	6S125C41	470 10% 1/2W	*77K565209	TUNER, AT430: complete	
R-24	6S125C81	22,000 10% 1/2W	4K501364	WASHER, "C" (manual shaft ret)	
R-25	6S125C75	12,000 10% 1/2W	4K692188	WASHER, "C" (pointer ret)	
R-26	6S125C25	100 10% 1/2W (in some sets)	4A562431	WASHER, cup (clutch release spring)	
R-27	6S125C23	82 10% 1/2W (in some sets)	4K564253	WASHER, spring (manual shaft)	
R-28	6S125C25	100 10% 1/2W			
R-28	6S125C64	4700 10% 1/2W			

\* NEW ITEM. APPEARS IN ANY LIST FOR FIRST TIME

# LIMITED REPLACEMENT ITEM. THE VOLUME OF REPLACEMENT ON THESE ITEMS IS SMALL, THEREFORE, IT IS SUGGESTED THAT ORDERING BE DONE ONLY AS REQUIRED.